

THE CHEMIST

October 1952

VOLUME XXIX



NUMBER 10



C & E N

*Dr. Gustav Egloff, Hon. AIC, and Dr. and Mrs. Foster Dee Snell at the
N. Y. Chapter Meeting honoring Dr. Snell.*

(See Page 469)

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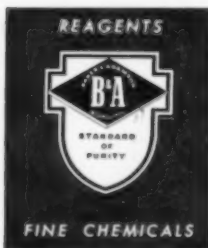
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ANNUAL MEETING PAPERS

Continuing the series of excellent papers, presented at the 1952 AIC Annual Meeting, the following articles will appear in the November and later issues of THE CHEMIST:

The Technical Editor's Approach to an Expanding Literature, by D. O. Myatt

The Orientation of Research Activities, by Raymond Stevens, F.A.I.C.

The Responsibility of Chemists in Patent Matters, by Dr Francis X. Murphy

Safety and Hygiene in the Use of Radioisotopes, by John C. Pennock

Industrial Problems in Skin Cancer, by Dr. Ernest L. Wynder

Shipping Regulations for Chemicals, by T. C. George

The Consultant's Organization, by Dr. Foster D. Snell, F.A.I.C.

Research Returns from Patents and Inventions, by Dr. E. H. Northey, F.A.I.C.

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Consulting Chemists and Their Laboratories Serve Industry

Dr. Foster Dee Snell, F.A.I.C.

Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

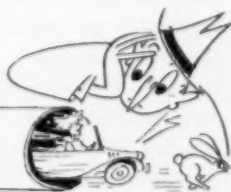
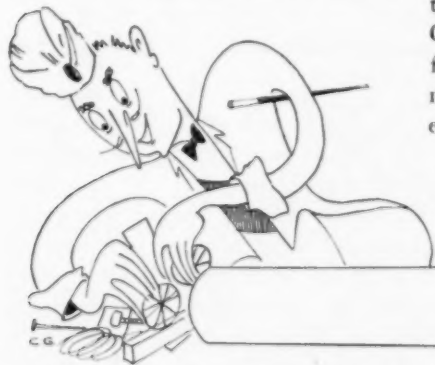
(Presented when the New York AIC Chapter awarded its Honor Scroll to him May 22nd, in New York, N. Y.)

THIS scroll will be a treasured memento of this occasion. It is to me a symbol of results obtained by the loyal cooperation of many colleagues of whom I shall mention only two—Cyril S. Kimball, vice-president of our organization and a member of it for over twenty-five years. The second is the loyal collaborator in many fields including the chemical profession and preparation of book manuscripts—Dr. Cornelia T. Snell.

Now to the subject of my talk. Briefly what and why the consulting chemist and chemical engineer?

To non-professional people he is often a man of magic whose mind serves as a crystal ball to solve all

the mysteries of the nature of matter. Or he is the manipulator of a superior form of automatic extraction equipment into which he can feed at one end a sample or a problem, and receive



at the other end a complete analysis or a satisfactory solution, no matter how complex the feed stock.

In speaking of the consulting laboratory, I shall use a broad definition as including all laboratories where the ownership differs from that of the client served. The definition excludes foundations such as the Kettering foundation, non-profit institutes such as Mellon and Armour, on the theory that there is no owner, and captive laboratories such as the Standard Oil Development Corporation as merely an extension of a company research laboratory, a huge extension. Of course I exclude laboratories-only-in-name such as those that make cosmetics or pills. Thus I include analytical as well as research laboratories.



competitors when one gets beyond analytical work.

The consultant serves a heterogeneous group of clients ranging from individuals through legal firms, financial houses, and advertising agencies, but mainly includes small and large manufacturers. To condense the subject the balance of my talk will be confined to a discussion of the ways in which the consultant serves the manufacturer, which is the major field of his activity.



What manufacturers? Almost any ones. Let us look at the matter of raw material supply. A manufacturer of a plasticizer may offer it with full-page spreads in the technical journals and hope that the potential user in lacquer, plastics, rubber, etc. will investigate its possible use and find out whether he has a product of real merit. A second channel of introduction is to have his own laboratory do such work on it as it can with the facilities at their command, inflate those as much as possible, and issue somewhat hopeful bulletins as to the uses. There is a third channel. Even though the manufacturer may operate a substantial research laboratory, the end use of his finished product, someone else's raw material is often outside of the area of collective experience of his researchers. An alternative to taking on additional personnel

CONSULTING CHEMISTS . . .

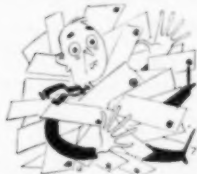


is to seek out a consulting laboratory with the know-how. To illustrate, perhaps a petroleum refiner wants to know the end uses of microcrystalline waxes from his tank bottoms. No manufacturer can extend his laboratory functions indefinitely.

Now let us look at the other side of the raw material supply picture. Let us say a furniture manufacturer is troubled by checking and crazing of veneer finishes. His laboratory is rudimentary, designed to check quality of incoming products—as nonexistent. He may blame his suppliers of kiln-dried wood, adhesives, finishing materials, and whatnot until one of them in desperation finds out which product is at fault—not his own of course. I recall an example of shaving cream darkening in the tubes where the tube manufacturer blamed the grade of stearic acid, the stearic acid manufacturer blamed the supplier of essential



oils, the essential oil house blamed the supplier of alkali, and the alkali supply house blamed the tube manufacturer on the ground of the type of alloy used.



That was a complete circle if you follow it. Then the consultant came in and got the evidence to hang the right man—the one who was in the wrong. As in that example the consultant is often called in by the raw material user to bring some form of order out of a chaos of claims.

The best analogy I know of to explain the difference between the consulting laboratory and those maintained by industry, is that it is parallel to the difference between an independent legal firm and the legal staff of a company. Any company furnishes its requirements for professional services from salaried personnel—whether legal or chemical—up to a point. Beyond that point independent professional services are preferable. I shall illustrate, going largely from the simple to the complex.



A company is a purchaser of a specific raw material, let us say cottonseed. The contract price will be based on protein content, oil content, free fatty acid, etc. The seller would be unwilling to have the buyer make the analyses



and pay according to the results he found. The buyer would be equally averse to accepting the seller's analyses. An independent laboratory associated with neither buyer nor seller therefore does the work. Since these results are unbiased both sides are willing to accept them. Such laboratories, usually known as test-

ing laboratories, are typified by the Barrow-Agee Laboratory of Memphis, Tennessee, who run many hundreds of analyses on cottonseed daily.

Speaking of analysis, Arthur D. Little used to exhibit a brief but succinct letter from a lady. It was decorated with a neatly drawn circle less than a quarter-inch in diameter and read, "Dear Sir, How much would you charge me to analyze a pill so big?"



A company—either small or large—recognizes the need of chemical research at a given stage in its development. Perhaps chemistry has up to then been recognized only as a minor

factor in new development. The company directors do not feel that they should invest from \$10,000 up, in a research laboratory and equipment for one or more men. So they retain the services of a consulting laboratory for one year, or five years or ten years before making their own installation. Thereafter the consultant often serves as adviser for further years.

Back in the 1920s the Quaker Oats Company had mountains of oat hulls as a by-product. Oat hulls did not make very good fuel. Might they contain something of real value? Carl Miner and his Miner Laboratories of Chicago were retained to find out what oat hulls were chemically. He and his staff found them a good source of furfural then a rare compound with a number of potential uses. A pilot plant was installed for manufacture of furfural. A market was developed which required a full-scale plant. The market outgrew the supply of oat hulls. Today furfural is a solvent, a resin intermediate, a fungicide, and is the starting point for many useful commercial derivatives. It is now largely made from corn cobs.



CONSULTING CHEMISTS . . .

The client in such a case might be a trade association seeking an end use for an industry by-product. For example tall-oil produced by the Kraft-paper industry.

Here's another type of situation. The research department of a large company, let us say one engaged in making fertilizers and agricultural chemicals, develops a surfactant for their own use which may or may not be of general interest in industry. It is also suspected to have germicidal properties. They have no bacteriological department and as yet are not sure that they will need one. The new product they consider bringing out needs bacteriological research and control, but it may not be a commercial success. What is more natural than that they conduct the necessary investigative work in the laboratory of a consultant for six months or even continue it there for several years. If the field grows and the product becomes an important item with that company, they then will probably install their own bacteriological laboratory, often with personnel selected for them by the consultant. If the product does not grow, perhaps it is abandoned, they have not invested a substantial sum in sterilizers, incubators etc., which they will no longer need. What is of greater significance, they have not made the concomitant investment in fitting into their organization technical personnel which will now have to be released.

A typical case, although not parallel to my example, is that of one of the oil companies in developing manufacture of isopropanol. The process was worked out by Arthur D. Little, Inc.; the pilot plant was set up and operated by them. The full story is in Dr. Little's Perkin medal address of some years back.

Any company, no matter how large, needs specialized equipment which it does not have. The use is occasional so that it does not justify the space to own the equipment, or to train personnel to operate it. Samples are sent out. For example, the General Electric Company has Norma-Hoffman bomb tests on greases done by a consultant. Many firms have their spectographic analyses done by the New England spectographic laboratory and their infra-red curves run by Samuel P. Sadtler and Sons. There is a great deal of



interlaboratory work done in that way. The United States Testing Company does fadecometer work for other laboratories, others do weatherometer and polarographic work for other consultants. To be personal, we have large amounts of baking work done for us under our supervision by Bohn Food

Research, Inc. It is simpler and cheaper than to operate our own equipment intermittently for the purpose.

Suppose a company has large control and research laboratories, but it has what appears to be a temporary overload. Rather than equip for short-term use, the work is sent out. It is from such a situation that the present sodium metasilicate industry was developed through consulting channels in the early 1930s. Recently one company was so overloaded in the analytical department, partly due to building new laboratories, that any qualified laboratory could have all the soap and syndet analyses it could handle.



A company has a knotty problem which its personnel have not the experience to solve. Perhaps they are textile weavers and the compounds for protection and lubrication of the threads available from commercial sources are not quite good enough. A consultant is engaged. The examples are legion, in fact that type of service comprises much of the activity of many individual consultants.



A company requires ideas for guidance and amplification of its research program. It calls in a mature consultant with the requisite experience to sit in on research conferences weekly or monthly as the case may require, to advise on the general direction of the research and suitable methods of approach.



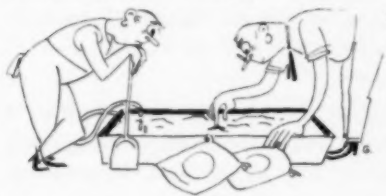
Reference has been made to the parallelism between the chemical and legal professions. In some cases they approach very closely. Litigation arises, as it often will. There is a claim for product liability. A product is

claimed to have injured a person or to have caused a fire or explosion. Or a company is alleged to be infringing a patent, or it contends that a competitor is infringing one of theirs. It is the almost universal practice to use a consultant in such cases because of his disassociation from the management of the company. The consultant is sufficiently remote to have a more disinterested point of view. Courts give more weight to such testimony. The late William M. Grosvenor was supposed to spend most of his time in preparation and presentation of patent litigation. A case today

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involving petroleum is apt to bring in Benjamin T. Brooks or George Granger Brown; one on phenolic bodies will often involve John M. Weiss.

A matter of a major investment is under discussion by a financial house. Specialized knowledge is needed. Many investment firms have their chemical consultants; an example is Williams Haynes. The satisfactory clean-up of a



ship's empty oil tanks needs inspection. Dr. Purdy of Bull and Roberts is called in. The matter is one of vitamin concentration. Call in Dr. Oser of Food Research Laboratories. Textile finishes are involved. Call in Milton Harris of Harris Research

Laboratories of Washington, D. C. A matter concerns the Food and Drug Administration. Call on Joe Harrison of LaWall and Harrison in Philadelphia. Roads are to be laid. Call on the Pittsburgh Testing Laboratories to inspect the job and see that the concrete mix is right, that the job is done properly. A paper shipment received is to be inspected. Call on Skinner and Sherman of Boston. The resistance of a product such as awning material to outdoor exposure to the elements is needed. Consult Earl De Noon of South Florida Test Service in Miami. Of course those are only examples.



Consultants render all forms of chemical service. I was once asked by an M.D. to develop a gaseous food. My answer was a brief lecture on the difference in function between the respiratory and digestive systems.

We hear much of consultants but few realize the magnitude of it as an industry. Recently Myron J. Rand of our National Research Council referred to independent consulting laboratories as major employers of technical men. His figures showed nearly 4,400 technical men so employed, with approximately 4,800 supporting personnel, using a current factor that approaches a 100-million dollar industry. The only individual industries employing more were the chemical industry as a whole, the communications industry, and petroleum which is today often considered as a part of the chemical industry.

I have been privileged to see the consulting industry—speaking broadly of all of its branches—multiply and then multiply again, just as research itself has over the last thirty years. That, I believe, in itself speaks for the consultants as filling a definite need in our American economy. The United States spends one per cent of the gross national production annually on research and thereby increases national production by three per cent annually. That's a pretty good yield and consultants do their part.

Foster D.—As I Know Him

Dr. Gustav Egloff, Hon. AIC.

Universal Oil Products Company, Chicago 4, Illinois

(Presented on the occasion of the Award of the Honor Scroll of the New York AIC Chapter to Dr. Foster D. Snell.)



C & E N

Dr Snell accepting the Honor Scroll from Karl M. Herstein, Chairman, N. Y. Chapter.

THE outstanding accomplishments and admirable character traits of Foster D. Snell are so numerous that more than one evening would be required to cite them in entirety. This broad-gauged individual really merits separate speeches on Snell the Chemist, the Author, the Expert Witness, the Benefactor of Professional Societies, the Administrator, the Self-Made Man, the Good Friend, the Navigator and perhaps even Foster the Bridge Shark.

Although many men have achievements to their credit after middle age, few have done much that is outstand-

ing in their youth. At that time in life when the average person has barely reached manhood, Foster wrote a book on colorimetric analysis which was a foundation stone in that field. When this book was published, he was studying for the Ph. D. at Columbia and supporting himself through teaching at City College of New York, plus some consulting jobs which had already started to come his way.

The greatest highlight of his pre-doctoral career, however, was his marriage to the charming Cornelia Tyler. In this instance, Foster proved himself as a super-salesman. He not only won the beautiful Connie but sold her on the idea of studying chemistry, a subject which she had carefully avoided as an undergraduate. A few years later, Connie also took the Ph. D. in chemistry from Columbia and since that time has been an invaluable member of the Snell staff.

Foster has continued to be a master salesman of chemistry as a career. He also persuaded his brother, Dr. Chester A. Snell, to follow the same path. Apparently, he has failed in

only one instance. His daughter Barbara is not only taking a Ph. D. at Columbia in psychology but she married a fellow student in the same field.

After completing his work at Columbia, Foster went to Pratt Institute in charge of courses in technical chemistry by day and organic chemistry at night. He must have been as impressive as a teacher as he has been in his consulting work because former students remember him so well. On one occasion he and Connie were relaxing in a night club when they were approached by a stranger in a dinner jacket. It soon developed that the stranger had been a student under Foster in the early nineteen twenties. Instead of going on in chemistry, he had taken up music and was then appearing in a smash hit on Broadway. It was Borah Minevich, who, with his troupe of harmonica players, has become internationally known. The next week the Snells received two tickets to the Broadway show.

Foster's services as a consultant became increasingly in demand while he was at Pratt and after two years, he found it necessary to open a separate laboratory. Three years later he had to give up teaching entirely so that he could devote full time to consulting.

In 1930, Foster D. Snell, Inc., was founded. The story of the firm's growth and contributions is a good measure of the man, Foster D. Snell.

One of the most amazing facts about the Snell organization is that a large part of its growth took place during the gloomy depression years between 1930 and 1940. This great achievement is solid proof of Foster's optimism, perseverance, and good business sense.

At the time of incorporation, about 25 persons were employed. The staff now exceeds 100, and physical facilities have been expanded accordingly. By 1933, the Snell organization occupied several floors in the *Brooklyn Daily Eagle* building and in 1946, moved to West 15th Street in Manhattan where it now occupies an entire ten-story building. More recently, the Snells acquired the Supplee animal laboratory at Bainbridge, N. Y. which is populated by over 12,000 rats and the permanent population will be over 20,000 when an additional building is completed.

The acquisition of so many rats should not be construed as an indication of a great affection for the animal kingdom. Foster is no lover of the little beasts, but he has of necessity become well acquainted with them through the activities of his Pharmacological and Toxicological Departments. He points with pride to the quality of the Snell-Supplee stock of rats which are clean and gentle and don't bite. Although high grade rats have been available from colonies in the Midwest for some time, the Snell organization is the first to supply

them in the East. Last year they sold 25,000 in addition to keeping a permanent colony for their own work in vitamin D determinations and other tests.

The Snell laboratories in New York City have for many years housed a variety of rats, guinea pigs, rabbits, dogs, monkeys and even real live pigs. The presence of such creatures in Manhattan has not been without difficulties. A case in point is that of Pescy the Pig. For a period of time, he had been used in connection with some radiological experiments but when the experiments were completed, the Snell's pondered for some time over what should be done with him. Finally someone conceived the bright idea that Pescy should be donated to the Bronx Zoo which gratefully accepted him and gave him a home in its Kiddie Zoo division.

The contributions of the Snell organization to chemistry have been many and varied. By and large, consulting firms must be prepared to tackle whatever problems clients bring to them. Probably Foster's best known work is on soaps and synthetic detergents. His work in this field was particularly recognized by the Society of Chemical Industry which awarded its Gold Medal to him in 1949. His interest in this field began in 1926 when he and Cy Kimball undertook a consulting problem on the subject. Foster was one of the first persons in this country to see and evaluate a

synthetic detergent. His interest in and knowledge of the field of synthetic detergents, soaps, and other cleansers has expanded throughout the last twenty-six years as is exemplified by forty-eight published articles in this field.

Foster's first patent, issued in 1930, covered a "Composition Blackboard and Method of Making Same." Previously, blackboards were either of natural slate or of coated composition board. The slate was expensive and fragile while the composition was unsatisfactory because the chalk and erasing wore through the abrasive coating. Foster conceived the idea of making a blackboard from glass. After a great deal of disappointing work, he developed a suitable material but glass manufacturers could not produce it. His perseverance finally won out and a commercially suitable product was manufactured. During World War II, the Armed Services adopted such boards as standard equipment.

Some other fields in which the Snell organization holds patents are hair waving, plaster, acid and water-proof cement, fuel briquets, heat transfer media, dental prosthetics, and lime composition. In all, the name of Foster D. Snell now appears on forty patents and other members of his organization have had about fifty others issued.

The Snell organization has also been very active in consumer product

development. Early in his career, Foster realized that the expense of product development was often prohibitive to the small manufacturer but that such work could be done in a central laboratory for a number of firms at moderate cost. Development work has been carried out on such products as household cleaners, polishes, waxes, detergents, plumber's accessories, hydraulic brake fluids, antifreeze, cosmetics, and more recently on pressurized package products.

His knowledge and experience have also made him an outstanding expert witness in litigation involving chemical processes. In this role he enjoys himself perhaps more than in any other. He finds the challenge of direct and unpredictable opposition highly stimulating. He has one of those phenomenally good memories that can stretch back over thirty years and come up with the hour, minute, and second that a specific event occurred. Despite the annoyance, irritation, discomfort and embarrassment that an individual with such a memory causes everyone around him, he is a great asset when on your side in a patent suit. His natural self-confidence and ability to think quickly on his feet are perfect qualifications for this job. He is keen and resourceful, a cool and unemotional thinker, and is always prepared ahead of time. This combination of

talents has made him a most formidable adversary to some of the best trial lawyers in the country. Although these law suits frequently call for weeks of abnormally long working days, he is always ready to undertake a new case enthusiastically.

In addition to running a successful business and appearing as an expert witness, Foster has contributed extensively to the scientific and technical literature. He is author or co-author of sixty-eight published articles and six books. His most frequent co-author has been his wife, Dr. Cornelia Snell, who has a high reputation in her own right in the chemical field. She is co-author of both the 2nd and 3rd editions of *Colorimetric Analysis*, which, incidentally, has grown from the single thin volume first edition of 1921 to a three volume series. Others are *Chemicals of Commerce*, and *Chemistry Made Easy*—in four volumes. And I am sure that making chemistry easy is no easy task.

As members of the INSTITUTE know so well, Foster has never been selfish with his time despite the burden of responsibility which he carries in connection with his business. His real interest in raising the status and standards of the profession of chemistry is evident in the record. He has been active in many chemical and related organizations for over twenty-five years. The jobs which he has un-

dertaken for these organizations have been the time-consuming rather than the honorary type. Members of THE AMERICAN INSTITUTE OF CHEMISTS well remember his able administration as President for the two year period from 1946 to 1948. One of his most noble sacrifices, however, was probably made during the twelve year period from 1925 to 1937 when he was Secretary of the American Section of the Society for Chemical Industry. It is usually the secretary of an organization that does the work. He has also held offices in the American Chemical Society, American Oil Chemists Society, the National Research Council and the International Union of Pure and Applied Chemistry. Many of the committees on which he has served are the type that require a real contribution in time such as those of the ASTM, the ACS Council Policy Committee and the Committee on Organization of the International Congress held in New York last September.

One of his associates has explained why Foster is such a good committee man. It seems that Foster hates deadlines and in order to avoid being harassed by them, he investigates the problem and has his preparations completed at least 30 days ahead of schedule. When the time comes, he has planned for all contingencies and gets the job done promptly and well.

It is surprising that anyone who is involved in so many activities would

have any time left over. Yet Foster has managed somehow to become an expert at playing bridge and in navigation.

Bridge is another example of the excellent team work of the Snells. Foster and Connie have won so many trophies as partners that their book shelves became so overrun with silver and pewter wine cups, cocktail glasses, trays and so on that there was no more room for books. Perhaps Foster's great liking for bridge is the challenge that it often presents. He gets more fun out of playing an interesting and difficult hand and going down three or four tricks than he does in making a perfectly pat contract. His friends say that he is famous for preemptory bids, especially four spades.

It is not clear whether his career as a navigator was instigated by a distaste for automobiles or a liking for boats. He once owned a car for a short time but traded it in for a dinghy with an outboard motor. With his usual perseverance, he studied elementary piloting and graduated to a small cabin cruiser. Pursuing courses and examinations given under the auspices of the U. S. Coast Guard, he attained the rank of Junior Navigator and the right to display the ensign of the U. S. Power Squadron. Although Foster then had a boat and was qualified to operate it, he had another hurdle in front of him. He had to sell Connie on the idea that boating was

a pleasant pastime although she has since become a boating enthusiast. The Snells now own a 33-foot cabin cruiser christened *Sliver*. On week-ends when the weather is good, the Snells will not be found at their Manhattan apartment for they will be cruising up and down the Hudson.

One may well ask what unusual traits characterize this human dynamo, Foster D. Snell. He is a hard worker, and indefatigable worker, but that alone is not enough. He has a naturally keen mind and is persevering. Whatever he takes up from chemistry to bridge, he pursues his course quietly with dogged persistence. He also has that indispensable quality of loyalty—loyalty to his friends and to his own conscience in sticking to what he believes is right. These attributes give him the self-confidence that is necessary to success.

Perhaps his greatest asset is his optimism—a particular kind of optimism that is devoid of illusion. Although he does not view the world through rose colored glasses, he sees the world's many woes as challenging problems to be solved with ingenuity and effort. He can be depended upon to analyze a given situation clearly and point out the fallacies if they are there. At the same time, he is not the iconoclastic type of person who enjoys shattering the idol for the sake of effect.

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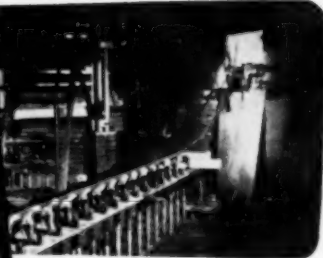


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Research Reports to Management

Dr. Randolph T. Major, F.A.I.C.

Vice-President and Scientific Director, Merck & Co., Inc., Rahway, N. J.

(Presented at the AIC Annual Meeting, May 8th, as part of the General Session on "Chemical Research—Management Viewpoint.")

MY REMARKS might as well be on the subject, "Research Reports to the Rest of Management," since in most modern companies research is a part of management. The heads of research ordinarily are a part of the management team. The rest of management includes of course first, Top Management; that is, the President and the Executive Vice-President, or someone occupying a similar position. The Sales Head, the Production Head, the Treasurer, the Controller, the Legal and Patent Department Head, the Personnel or Industrial Relations Head, and the Engineering Head are all part of the operating management of the organization. Of course, the Top Management is more concerned with policy matters and overall decisions; and the rest of Management is more specialized in its activities. Webster has defined management as "The collective body of those who manage or direct any enterprise."

American industry is generally assumed to have been started largely by certain financial tycoons in the 1800's and earlier. But if one studies the history of our chemical industry, one finds that its founders were, to a

large extent, technically-trained men. Some of them were scientists; some, engineers and inventors. Baekeland invented Bakelite; Hall was responsible for starting the Aluminum Company of America. Bell invented the telephone. Herbert Dow founded the great chemical company named for him. Edison founded much of our electric industry. Grasselli founded a chemical company. Land invented Polaroid and established a company to make it. Dr. Squibb founded the pharmaceutical company of E. R. Squibb and Sons. George Rosengarten, a banker, had the full cooperation of the scientifically-trained chemists, Seidler and Zeitler, in founding his company. John F. Queeny was helped in founding Monsanto by Louis Veillon who was technically-trained. As the industries grew, other specialists were drawn into the organizations—financiers, sales experts, personnel managers, public relations experts, etc. And as industry has grown the most important problems have not always been technical. Often they were administrative in character and able administrators were placed in charge of industry. As industry has

much more complicated and a management group was often put in charge with a Top Management to set policies, approve operating budgets, and arbitrate differences between the operating heads of Sales, Research, Production, etc.

Research and research men have been accepted as an essential part of industry only comparatively recently. There is an organization in New York of Research Directors which was founded in the 1920's. One of its principal purposes was to discuss the value of industrial research and how to persuade the top management of industry of the importance of research to industry. That need no longer exists. Nobody in industrial research today has any difficulty in persuading management of the importance of research. The real problem is to dissuade management, bankers, lawyers, and others from thinking that Research can do more than it actually can. True, it is very stimulating to have so much expected of one. Everybody is convinced that research is essential to industry today.

At the dedication of his company's new laboratories recently, Mr. L. A. Van Bomel, President of National Dairy Products Corporation, stated: "Research is no incident of business. It is a basic need of management. No business can long survive in today's fast changing world if it fails to keep abreast with scientific developments." I think there is not an individual in

this room who would contest the validity of this statement.

What does Management expect from Research? This can best be answered by discussing what the separate administrative divisions of Management expect from Research.

What does the production man expect from Research? He needs help in lowering his costs. He wants new and better processes to use in his factories. He wants help in straightening out process difficulties, and also new products to enlarge his operations and to take the place of products that have become obsolete.

The engineer wants new processes as a basis for building new plants. He wants information on building, facilities and new laboratories he must erect. He requires reports on how the facilities are performing and the operations he has installed are operating. This reminds me of complaints which were made several years ago to our engineering chief. For several consecutive nights the temperature in the animal room of our Merck Institute rose so high that great numbers of small laboratory animals became ill. Complaints were made to the engineering head. The thermostats and heating equipment were checked several nights in succession. No one had raised the temperatures. There was nothing wrong with the thermostat. There was no explanation for the nightly increases in temperature, except it was noted that each morning

the temperature indicated on the thermostat was higher than the evening before. Finally one night a watchman saw a monkey playing with the dial controlling the temperatures. The monkey apparently had observed individuals adjusting the dial controlling the temperature from time to time and had decided he wanted to do the same. The monkey was caged after that!

Control is another group that expects reports from Research on new processes, and preliminary standards for new products which have been found in developing new products.

Sales wants new products and reports on them. Research must often convince Sales of the importance of new products. This is often forgotten by the Research people. It is necessary to give convincing evidence to Sales on the value of a new product. This is often necessary before Sales begins to sell the product to others. Sales wants new uses for the Company's products and lower costs to meet competitive prices.

The Patent Department wants reports on new processes, new product information, technical advice on interferences, etc.

Legal Department wants reports on license arrangements, contracts, etc.

Public Relations wants reports on scientific and other personnel changes and records of newsworthy scientific achievements.

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The Treasurer and Controller want reports on expenses by projects, contributions and grants and the opportunity to approve, or disapprove, these. Also, they want to see new budgets and control expenditures within approved budgets. They want to know about capital expenses for new, proposed plants, laboratories, equipment, etc.

Personnel wants to know what new personnel is needed and information on recruiting and of salaries and wages proposed.

Top Management wants reports on new products, new processes, and new uses for Company's products. They have the responsibility of approving, or disapproving, proposed new products, and approving or disapproving proposed yearly budgets and capital expenditures. These require reports on the organization. They want to know what the prospects are for a new development and what may be expected in the future.

All these reports are necessary and are required in a well-functioning organization. First, there are oral reports which are often of most value. Oral reports from one individual to another are often the most effective. Second, there must be committee meetings (and how many there are of them!). There are Management Committees looking at the Company's problems from the overall point of view and Research must be in a position to present facts and what may be expected of it. There are Patent Committee Meetings where what should be patented and what should not be patented is discussed. There are meetings with Management and outsiders; such as meetings with research scientists, lawyers, financial experts from outside the company. These can be very valuable.

Then there are the written reports beginning with the regular periodic reports on research. I wonder sometimes whether all such reports are necessary, but it is very difficult to know at what point to stop them. There are special written reports on new products, new processes, and new uses of products. They must all appear and someone must read them.

There are requests for budget changes and capital funds. All must be recorded and written. There are literature surveys, patent surveys, etc. All of this goes to Management from Research often with many copies for others in the organization.

Before commenting further on what

reports are essential and what are not, I want to call your attention to the confidential character of much of the material that comes from our Research Laboratories. Most of it must be kept out of unauthorized hands. I often think of the steps that are taken by military organizations to protect their technical reports. You know how closely such reports are guarded. Industrial research reports are often as important to a company as a technical military report is to the defense of our country. These industrial research reports are extremely important and should be protected from unauthorized use. I do not mean to imply, however, that these reports should not be published at the proper time. I think we can all agree that the scientists of an industrial research laboratory should be free to publish their findings, as soon as the Company's interests are properly protected.

I have indicated already that there is an enormous number of reports that must go from the Research Laboratories to Management. Also, it is extremely important that all reports that are addressed to Management be prepared for Management with Management's needs in mind. There would be no point in sending to Management the telegraphed report that a chemist sent to his Research Director reporting the successful synthesis of a natural product by saying, "Mixed melting point not lowered." This

would have meant nothing to Management.

Management reports must be written from the point of view of the reader. On the other hand, such reports should be concise. We can all agree that, if it is understandable, a report of five words to Management is much better than one of ten pages. Conciseness can often be achieved by a brief summary at the beginning of a report. The fundamental problem is to supply Management with necessary information—enough information but not so much as to make it burdensome.

In conclusion, it is important to remember that Research must inform Top Management of what it is do-

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ing because the latter controls its budgets, its capital expenditures, etc. It is also important that the rest of the operating Management of an organization be kept informed in order to have complete cooperation between them and Research. Finally, it is extremely important that all reports be clear and be written for the men who are to read and act on them.

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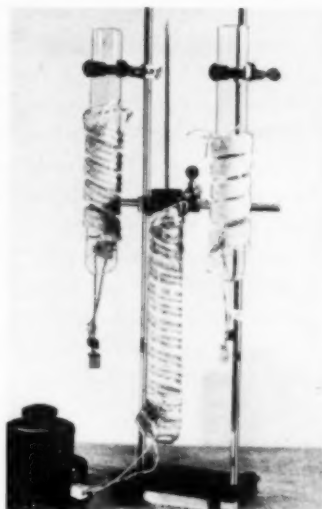
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	"	125	64	250	1-5	12.25
	"	150	76	450	2-3	16.65
	"	180	89	500	2-6	19.25
65090	Insulated on one side	90	25	100	0-8	11.40
	"	125	64	250	1-5	14.90
	"	150	76	450	2-3	20.15
	"	180	89	500	2-6	22.95
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International Education In Industry

R. M. Strain and Paul Kolachov

Joseph E. Seagram & Sons, Inc., Louisville, Kentucky

(Presented at the World Chemical Conclave in New York, N. Y.)

AMERICAN universities play an important role in shaping the industrial future, not only of the United States but all the other countries of the world. The industrial machine supporting our economy was made possible largely through theoretical knowledge attained in our universities. However, to the university graduate there is a big gap between his basic technical concepts and the effective application of these concepts in industry. He must acquire what might be termed industrial vision, obtained best by seeing what has been done in industry and by actually doing, himself. This necessary transition from scientific fundamentals to the applied principles of both science and human relations can be achieved best within industry itself. The Seagram International Fellowship Program is directed toward bridging this gap for students of other countries just as the planned experience programs of many industries bridge this gap for our own students.

This lack of integration between academic training and industrial experience is not wholly the fault of the universities. American industries are, for the most part, unwilling to give outsiders a complete picture of their

processing operations and the administrative background which makes possible the coordination of production. With our own graduates, this situation presents no serious problem, since by accepting employment in industry they can gain an insight into its operation. With foreign students, on the other hand, there are serious obstacles which bar them from participating in our industrial system. Fortunately, there are a few exceptions to this picture.

For over fifty years there have been a few American firms that have had programs for training foreign technicians. The type of training program offered is largely dependent upon whether or not the firm has foreign operations or is engaged in foreign trade. Most of the programs offered by firms having foreign interests are open only to foreign nationals from foreign branch offices, associated companies or distributors handling company products. These programs are not open to foreign students for practical training, unless the student agrees to work for the company when he returns home.

There are a few companies, however, that sponsor training programs for foreign students even though they

do not plan to hire them later. Joseph E. Seagram & Sons, Inc., is one of these. The Seagram International Fellowship Program is an effort on the part of one industrial firm to supplement the work of the universities in the cause of international education by opening all its facilities to skilled personnel from all parts of the world. The program was initiated in 1942, when a group of young Latin Americans, chosen by the State Department, was invited to spend a year at our plant in Louisville. During this year they were to study and participate in our production operations. Because of the war, the Latin American countries were about the only ones who participated in the program for the first few years. Immediately after the war, however, requests for fellowships began to come in from all over the world. The program was expanded and adjusted in peacetime production and at the present time over two hundred students from forty-six different countries have spent a full year of training with us. In ad-

dition, a number of students have spent from three to six months observing special production operations.

Selection

Fellows are now selected through arrangement with the Institute of International Education with the approval of the State Department. A candidate must have been graduated from a recognized institution preferably, though not necessarily, with a degree in chemistry, biology, chemical or mechanical engineering (Figure 1), and must be proficient in English. He must be sponsored by an industrial firm or his government, a recognized educational institution, or by an accredited foundation or institute. He must plan to return to his own country after he has completed his training. Those who cannot afford the cost of a year in the United States may apply to Seagram for a subsistence allowance.

There are no strings attached to these fellowships. Alumni of the program return to their homelands under no obligation to Seagram. They are

Figure 1
Academic Background of Seagram International Fellows

<i>Chemistry</i>	Bachelors	Masters	Doctors	Total
General	33	20	15	68
Industrial	6	3	—	9
Biochemistry	3	1	2	6
Sugar	19	1	—	20
Agricultural	9	—	1	10
				113
<i>Chemical Engineering</i>	52	31	6	89
<i>Mechanical Engineering</i>	1	4	—	5
<i>Others</i>	4	4	4	12
				219

free to go into business for themselves and to develop the natural resources of their country without interference, or they may seek employment in a home industry where they can apply the training they have received while they were with us.

Naturally, the question most commonly asked is, "What does Seagram get out of these fellowships?" To most people it is inconceivable that an industrial firm can possibly have an altruistic purpose, that it can see beyond money profits to intangible values which attend upon assuming a too-long-disregarded responsibility in helping to promote the well-being of other parts of the world. We know, first of all, that by means of our program we are sharing with fellow world-citizens some of the advantages that we have gained as aggressive, resourceful builders of industry. We are teaching them to do the things that Americans, through their exceptional opportunities for professional education and through the good fortune of physical and economic wealth, have learned to do better than anyone else in the world. We also believe that we are doing a small part to fulfill one of the major purposes of the United Nations as outlined in the Charter:

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rights and for fundamental freedoms for all without distinction of race, sex, language or religion."

There is, however, a practical value, which, although not measurable in dollars, must in all fairness be admitted. The countries from which these young scientists come are present or future markets for American products, including our own. If we can make them our friends by generous treatment of a few of their citizens, they are also likely to become good business associates. By helping to make industrially undeveloped nations become self-sufficient, we are also helping to make them into potential customers. Moreover, we are building up a vast store of good will, both for our own company and the United States, by helping young men and women of other countries—the future leaders of industry—to come to know and understand this country. This in itself is no mean accomplish-

ment in a time when distrust and hostility flourish even among former wartime allies.

Program

The training program is arranged to give the Fellows as broad an understanding of American industrial practice as possible. Currently the Fellows spend six months in the plant studying unit operations and administrative practices. They are taught fundamental principles that can be applied to the organization and operation of any industrial plant which utilizes the standard unit operations of chemical engineering. Extensive use is made of lectures and visual aids during this period to give specific information about our own industry and to indoctrinate them in American industrial philosophy. In order to stress the fact that organization always precedes plant operation, we present a series of lectures given by men who are responsible for the organization in our own plants. Department heads from both the central administrative and plant offices talk to the groups, explaining their work and how they organize it for maximum efficiency.

We are aware that in order to understand any operation, some theoretical background relating to the process is necessary. Whenever possible this theory is presented by members of the program. The men picked for this purpose are usually recent university graduates who have had

courses in the specific field or men who have had previous industrial experience which makes them qualified to speak with authority on a specific subject. As a part of such an assignment the men are required to search the literature for the latest information on the subject under discussion.

The Fellows spend a minimum of four hours per day, five days a week, in the plant. Specific assignments are made on each operational unit. These assignments include drawings of the equipment, an understanding of the variables which must be controlled, the factors related to the efficiency of operation, and the cost of operation and maintenance. In connection with this last item, the Fellows are expected to observe both preventive maintenance and the repair of processing equipment.

Particular emphasis is placed upon the fact that American industry is never satisfied with existing operations, that it is always searching for new means of improving them. In our plants, the engineering department always has two or three departmental projects which are aimed at improving some specific operation. The Fellows are encouraged to follow this process development. In this way they gain an insight into the never ending struggle of industry to achieve higher technological standards. In addition, it serves as an illustration that the goal of industrial research extends beyond the laboratory.

In connection with their class instruction emphasis is placed upon the fact that a knowledge of equipment and operating principles is not enough to guarantee that a man will be successful in running a plant. These classes stress the importance of proper relationships between supervisors and the men who work under them. The students are shown that the supervisor and workers must cooperate as a team for best results and that sincerity and fairness in dealing with workers pay dividends. These principles are developed further in a series of recorded lectures dealing with personnel management.

Two hours each week are devoted to the study of our language, our history, our political and economic background, and other aspects of our culture. These classes are supplemented by educational films and by talks given by newspapermen, educators, industrial executives, and other outstanding men in the community.

A group of thirty-six one-hour lectures by members of our research department is presented to show how research has contributed to industrial development. These discussions emphasize the research approach to industrial problems. The subject matter for these lectures is drawn from past and current research within our own organization. Both laboratory and plant research are discussed and whenever possible an attempt is made to evaluate the significance of the re-

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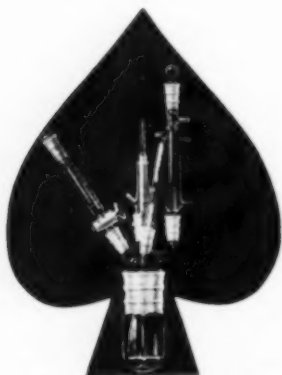
search from the viewpoint of both a scientist and a business executive.

Since many of the Fellows have been employed in industry or engaged in research in their own countries, we avail ourselves of the opportunity of drawing upon their experiences and comparing them with ours. Whenever possible, educational films, furnished by the various embassies, are used to show something of the industrial plants in other countries. These talks have proved very popular with our own personnel as well as with the Fellows.

A system of tours is arranged to acquaint the group with other types of industries located in Kentucky and the surrounding states. These trips are made twice a month. It has been

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our experience that most of the companies we visit make a conscientious effort to give the Fellows a thorough picture of their plant and its operation. Plant processes are explained and management policies peculiar to the operation of that specific industry are discussed.

During the second half of their year's stay the Fellows are assigned to our research department. The purpose of this assignment varies with the individual. To some it is an introduction to research, to others, who have had previous research training it provides an opportunity to learn new techniques and to extend their research experience. Those Fellows having special interests and qualifications are permitted to select their own research problems provided we have the facilities and personnel to properly pursue and supervise the project. Such projects are usually oriented toward the fermentative utilization of agricultural products which are native to the Fellow's homeland, such as, Bassia flowers, cassava, rice, tamarind, citrus and cane molasses, etc. Those who have not had sufficient research experience to propose their own projects become members of one of our own research teams working on problems of fermentation, distillation, instrumentation or analytical chemistry.

The Fellows are encouraged to take an active part in community affairs during their stay with us. They

Figure 2
Present Occupations of Seagram International Fellows

		Total
<i>Industry</i>		
Food	28	
Alcohol	43	
Heavy Chemical	15	
Pharmaceutical	10	
Soap	8	
Other	24	
	—	
<i>Education</i>		
Teaching	19	
Student	66	
	—	
<i>Government</i>		
	6	
	—	
		128
		85
		6
		219

are frequently called upon to speak before civic, religious, educational, and scientific groups. In so doing, the community gains an insight into the problems of other countries and at the same time there can be no question that the Fellows develop a broader understanding of problems facing us in this country.

Nearly all of the Fellows who have completed their year's training with us have obtained responsible positions in industry, agriculture, education or government service in their own country (Figure 2). It is our hope that they will become industrial leaders of tomorrow.

We have found that our program which has been developing and being tested over a period of nine years has proved an effective method of teaching. We believe that it promotes international understanding both among our own people and among our

trainees. In addition, our program is in direct accord with, and is helping to carry out the aim, of our government's Point IV Program to "help the free peoples of the world, through their own efforts, to produce more food, more clothing, more materials for housing, and more mechanical power to lighten their burdens."

New Laboratory: Being constructed at Whittier, Calif., by American Potash & Chemical Corp. It will cost \$300,000 and is planned for operation early in 1953.

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Elected: Vice-presidents of Schwarz Laboratories, Inc., New York, N. Y., Dr. Stephen Laufer, F.A.I.C., director of brewing technology and David R. Schwarz, manager of the manufacturing division. Dr. Laufer, a graduate of the Hochschule for Bodenkultur, Vienna, has been associated with the company for twenty-three years, and is also dean of the faculty of the United States Brewers' Academy.

New Quarters: Taken by Patterson, Moos & Co., Inc., research and development firm, at 90-28 Van Wyck Expressway, Jamaica, N. Y. A prime contractor for the military services, the company's facilities have been expanded one hundred per cent.

Elected: Francis J. Curtis, F.A.I.C., as president of the Society of Chemical Industry at its General Meeting in Aberdeen, Scotland, in July. He is the seventh president elected from the American Section by the parent society. Others were Prof. Charles F. Chandler, Hon. AIC, Dr. William H. Nichols, Prof. Ira Remsen, Hon. AIC, Prof. Marston T. Bogert, Hon. AIC, Dr. Arthur D. Little, and Dr. Wallace P. Cohoe, F.A.I.C. Mr. Curtis, vice-president and director of Monsanto Chemical Co., St. Louis, Mo., lately ended a year's leave of absence from Monsanto, during which he served as assistant administrator in the office of the National Production Authority, Washington, D. C., in charge of its Chemical, Rubber, and Forest Products Bureau.

Announced: By Dr. W. A. Lande, Jr., F.A.I.C., manager of Pennsylvania Salt Manufacturing Company's Research and Development Division, that the research department of Sharples Chemicals, Inc., will be integrated with the Division. Dr. John F. Gall will become director of the Inorganic Research Department; Dr. John F. Olin will be the director of the Organic Research Department, while William M. Lee, F.A.I.C., and Ford R. Lowdermilk, at present supervisors of the Product Development and Process Engineering Departments, will become directors of those departments.

Employer—Employee Relations

Dr. George L. Royer, F.A.I.C.

*Assistant Director of Application Research, Calco Chemical Division,
American Cyanamid Company, Bound Brook, N. J.*

(Introductory remarks by the chairman of Session D, at the AIC Annual Meeting, May 8th.)

THIS session entitled, "Employer—Employee Relations," deals with the professional aspects of the chemist. **THE AMERICAN INSTITUTE OF CHEMISTS** was founded with a definite idea of advancing the profession of chemistry. The other chemical societies which existed at the time of the organization of the **INSTITUTE** had placed their emphasis upon the science of chemistry and the promotion of chemical industry. While it is obvious that there would be no profession without the science or industry, from a humanitarian point-of-view, the chemist as an individual must be recognized. As the science of chemistry has advanced, so has professional relations.

The speakers on our session today are all well-known as men who have devoted a considerable amount of time to a study of organizational problems in chemical industry. In 1945, **THE AMERICAN INSTITUTE OF CHEMISTS** appointed a committee on employer-employee relationships to consider certain suggestions which had been made by the New York Chapter. Many professions such as the medical and legal professions are chiefly concerned with individual re-

lationships between the professional man and the public. However, since the majority of chemists are employed by organizations, an important part of their professional life is concerned with relationships with industrial managements. The committee which was appointed by the **INSTITUTE** made a report which was a start in an exploration of ways in which such relationships could be improved. This report can be found in the September and October, 1945, issues of **THE CHEMIST**. The twenty main factors affecting the chemist's well-being were discussed from a point-of-view which would be of value to the graduate entering the chemical field and also from that of the chemist who has been already established in the profession. While it does not attempt to rate various industrial organizations, it does give the chemist an idea of the factors which he should consider of importance in working for any organization.

The papers on this program will bring us up-to-date on this subject and give us something to think about in keeping our chemical organizations at the top in regard to their attitude toward the profession of chemistry

and will challenge each chemist to work with greater diligence toward a better chemical profession.

Note: The first paper of this session was published in the August issue of *THE CHEMIST*, p. 361, "The Organization of a Research Laboratory," by Dr. Robert M. Burns.

Purchased: By Shell Chemical Corporation, the firm of Julius Hyman & Co., Denver, Colorado. The agricultural chemical activity of Shell will be centralized here, and the Hyman Company will now be known as the Julius Hyman & Company Division of Shell. Sales Manager is L. F. Stayner, formerly of Shell's New York sales staff.

Tariffs Removed: By UNESCO agreement, in certain countries, on publications, works of art, visual and auditory materials, scientific equipment, and articles for the blind. The agreement was ratified by eleven countries, Sweden, Cambodia, Ceylon, Egypt, Israel, Laos, Monaco, Pakistan, Thailand, Yugoslavia, and Vietnam.

Abroad: Dr. Bernard L. Oser, F.A.I.C., director of Food Research Laboratories, Inc., Long Island City, N. Y., who included in his itinerary the Second International Congress of Biochemistry in Paris, the Second International Congress on Analytical Chemistry at Oxford, and academic and industrial laboratories in Israel.

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Research-minded: The petroleum industry, according to Dr. Gustav Egloff, Hon. A.I.C. "About 120 million dollars a year, the largest amount spent by any single industry, are allocated to research and development. The industry recognizes that expenditure of dollars is not enough to bring forth a never-ending stream of inventions. Highly trained manpower is the real force behind all inventions . . . the industry employs over 17,000 college-trained scientists and engineers."

Resigned: Dr. Charles C. Price, F.A.I.C., as head of the Chemistry Department of the University of Notre Dame, Notre Dame, Ind. His resignation was motivated by his interest in the important political problems of our times, which led him into active politics as the Democratic nominee for U. S. Representative from the Third District. Dr. Price will continue to serve the university as professor of chemistry.

In Memoriam

Calm Morrison Hoke

Difficult as it is to have to write of the death, on July 13, 1952, of Calm Hoke—chemist, engineer, founding Fellow of the AIC, this is a privilege I would not forego.

For hers was the first friendly hand to welcome me to my first meeting of the INSTITUTE—back in September of 1923—and for many years we served in mutual moral support as the only women at our meetings. I soon came to admire and respect her exceptional abilities and accomplishments, and to appreciate a delightful, many-sided personality, with a remarkable mentality and a pixie-ish sense of humor which had enabled her to adjust to an unusual career in metallurgical engineering.

This came out bit by bit. I well remember being with her in Atlanta, for my first meeting after she persuaded me to join the ACS. As editor of *THE CHEMIST*, I was planning a series of articles by members in unusual applications of our science, and she was high on my list. To my first question, "What did you take in college that has been particularly helpful in your present work?", her reply was, "Practically nothing; I intended to become a botanist." Casually I then asked, "If you had known you were to be engaged in your present work,

what would you have done?" To my astonishment, she dropped her brush and comb, swung around with an utterly tragi-comic expression, and exploded, "What would I have done! Jumped into the Chicago River!"

Calm had been born in Chicago, the daughter of Samuel Woodford and Utopia (Wright) Hoke, on August 25, 1887. She received her early education in the Chicago schools, started college at Wittenberg, during a short residence in Ohio, and finally took her A.B. (chemistry) at Hunter College, New York, in 1908. She returned to Chicago, took a B.S. (biology) in 1910, and continued in graduate work.

It was when she came home for vacation one summer that her father informed her he had bought a business for the manufacture of blow torches. When she asked who was to run it, he answered, "Why, you can, of course; you're studying to be a scientist." And that was that. In a complete mental somersault, Calm turned to Columbia for all the courses available to her in chemical and mining engineering, and earned a Master's degree in 1913. She brought herself abreast of the requirements of the new business, and except for two seasons during World War I, when she

doubled and taught chemistry at Columbia, her entire professional career was devoted to it.

This was Hoke, Inc., and the associated Jewelers Technical Advice, established by her father in 1912. The company soon had several patents for her inventions, and their advertisements—with the OK in the name encircled and repeated as a superscript—became familiar to thousands that never knew the presiding genius behind them.

She devised small blow torches and burners, admirably suited to the delicate craftsmanship of jewelers working with precious metals, and soon became an authority on the reclamation in this industry. She made special study of the control of compressed gases, and was able to utilize ordinary illuminating gas for her devices, instead of the acetylene formerly required. Methods of working with gold and silver were well established, but platinum was relatively new and dreadfully expensive, so her contributions immediately became of great economic importance. Calm served as chemist with Hoke, Inc., until 1926 when she was made vice-president and chief consultant. This business was sold in 1934.

Through Jewelers Technical Advice, C. M. Hoke instructed jewelers, dentists, refiners, and others in the refining, melting, salvaging, and finishing of all the precious metals. She devised tests whereby the old method of

the touchstone, long used for gold and silver, could be extended to all the metals and alloys of the platinum group. She gave generously of her time and knowledge for talks to schools and clubs on the occupational opportunities in her unusual field, especially on what she called "gemology" and "metal book-keeping." She designed many beautiful pieces of jewelry, especially in platinum to show its possibilities in its early days. Many articles were published in professional and trade journals; and her two books, *Testing Precious Metals* (1932) and *Refining Precious Metal Wastes* (1940), are classics in their industry.

I often told Calm Hoke that "I learned about women (chemists) from her." Her many little stories of experiences as a woman chipping—more literally, blasting—her way into a man's field were most illuminating, not only on the secret-ridden jewelry trade, but also on the hallowed halls of universities and the antiseptic aloofness of some professional societies. She used to raise a scarf or napkin before her face and say, "Speak freely; I'm not here." I remember one occasion, however, when this did not work—when Professor Kendall (then at Columbia) actually stopped a speech and made us leave a meeting of this INSTITUTE so that he could continue a little story that he obviously considered unfit for virgin ears.

IN MEMORIAM . . .

Calm Hoke was one of the prime movers in the establishing of the (first called) American Institute of Chemistry. Her father always took a god-fatherly interest in it and many of the early meetings were held at 22 Albany Street, the old quarters of Hoke, Inc. There, too, to maintain interest in the new organization, Calm devotedly set up and ground out the mimeographed sheets that served as our first *Bulletins*—the first six volumes (usually missing) of what is now *THE CHEMIST*. She was a signer of the original Charter, served for several years on the councils of the national body and of the New York Chapter, and was long a faithful participant in all meetings.

Calm enjoyed her crowded but well-rounded life. On her birthday in 1927 ("It took the curse off becoming forty"), and after many years of persistent devotion on his part, she married T. Robert McDearman, of Rocky Mount, North Carolina, a civil engineer, now with the New Jersey State Highway Department. They made their home at Palisade, N. J., and she maintained her early love of botany—and of nature in general—through camping trips, photography, and fancying cats.

She always was an ardent "Lucy Stoner," however, in her insistence on the use of her own name. I shall never forget her reaction at an early Annual Meeting of the INSTITUTE, when Dr. Byers, who had been the

first president, although wishing to give her credit for all she had done, pointedly omitted all mention of her name. He apologized and explained later that he could not make himself refer to her as "Miss Hoke" and he did not know her husband's name. She was simply livid at such a display of misplaced gallantry. Chance discovery of another name—Kalona—revealed a totally unsuspected talent, for that is how she signed bits of poetry which appeared occasionally in FPA's old column, "The Conning Tower," in the *New York Herald Tribune*.

Calm was active in many professional and other societies: Fellow of the AAAS, and member of the American Chemical Society, the Electrochemical Society, American Institute of Mining and Metallurgical Engineers, University of Chicago Alumni Association, Women's University Club (New York), Women's Club of Palisade, Audubon Society, and Greenwich Village Humane League. She will long be remembered by all that knew her in any capacity, because to all their interests she gave so generously of herself. She was a devoted wife and companion, a good neighbor, a loyal friend, an intellectually honest scientist, a skilled technician, a trustworthy consultant.

Not long after our Silver Anniversary meeting in 1948, Calm was stricken with phlebitis and she finally succumbed to an embolism. On a

scrap of paper found in her purse was typed:

Five duties line each mortal's path
That leads to life's far border:
To love; to learn; to serve; to earn;
To set one's house in order.

That seems to be the pattern that Calm Hoke kept in mind throughout her life. May we all fulfill ours as well!

—FLORENCE E. WALL, F.A.I.C.

Resolution

WHEREAS, We, the National Council of THE AMERICAN INSTITUTE OF CHEMISTS have learned with profound sorrow of the death, on July 13, 1952, of our associate and friend

Calm Morrison Hoke

and

WHEREAS, Miss Hoke, as a founding Fellow of THE AMERICAN INSTITUTE OF CHEMISTS and editor of its earliest bulletins, devoted unstinted zeal and physical effort to establishing it and promulgating its objectives; and

WHEREAS, as a chemist and engineer she held a unique position of authority in a specialized field of metallurgy; and

WHEREAS, her continuing interest in the science and profession of chemistry, as evidenced in her faithful service as Councilor, and her generous guidance to younger aspir-

ants as well as to her contemporaries, will always be an inspiring remembrance to all that knew her;

THEREFORE, BE IT RESOLVED, that the National Council hereby record its lasting appreciation and deep sense of loss of one of its most loyal friends; that our sincere sympathy be extended to her family; and that a copy of these resolutions be spread on the minutes of the Council of THE AMERICAN INSTITUTE OF CHEMISTS.

Harry P. Banks

Harry Picklands Banks, retired vice president of the Western Division of Monsanto Chemical Company, Seattle, Washington, died in Seattle, December 26, 1951.

He was born in Chicago, Illinois, February 19, 1884. He received the B.S. degree in chemical engineering from the University of Michigan in 1907. Upon graduation, he became chemist for the Boston & Montana Copper Company until 1908, when he joined Falkenberg & Laucks. From 1910 to 1912, he was assayer and engineer for Mt. Andrew Mining Co. of Seattle; from 1912 to 1915, Alaska testing engineer on the Big Creek Power Project for Stone & Webster; from 1915 to 1918, chemist with the Southern California Edison Company. In 1918, he joined Laucks Laboratories, Inc., Seattle,

IN MEMORIAM . . .

becoming vice president and general manager in 1920, as well as vice president of I. F. Laucks, Inc., in 1933, and later president and general manager of I. F. Laucks, Inc., In 1947, he joined the Western Division of Monsanto Chemical Company.

He was a member of the American Chemical Society and the American Institute of Chemical Engineers. Among his clubs were the Knights of the Round Table, the Masons, and the Washington Athletic. He was elected a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1938.

Being Completed: J. T. Baker Chemical Company's new inorganic chemical plant at Phillipsburg, N. J. Costing about one million dollars, it will have modern equipment and fume and dust removal system.

New Plant: Planned by Carbide and Carbon Chemicals Company, in Los Angeles, Calif., to manufacture polyethylene and ethylene glycol. Estimated investment, \$36 million. The exact location is not yet announced.

Superliner: The "United States" carries over thirteen and one-half miles of flame-resistant fabrics in draperies, bedspreads and trim, made from Dynel fiber developed by Union Carbide and Carbon Corporation.

Moved: The head office of U. S. Industrial Chemicals Co., Division of National Distillers Products Corp., from 60 E. 42nd St., New York, N. Y., to 120 Broadway, New York 5, N. Y.

Construction Started: By Monsanto Chemical Company on a phenol plant at Avon, Calif. It will be in operation by early 1954.

Organized: The Forest Products Division of Olin Industries, Inc., with headquarters in Shreveport, La., as the eighth operating division of Olin.

Chosen: Michel-Cather, Inc., advertising agency, New York 16, N. Y., to handle the advertising for Scientific Design Company, 2 Park Ave., New York, N. Y., specialists in organic chemical plant design.

Purchased: By Olin Industries, Inc., a 665-acre site on the Wabash River in Indiana, as a possible site for a cellophane plant.

Special Products Division: Formed by Beckman Instruments, Inc., South Pasadena, Calif., for custom instrument development.

Change: Kimble Glass Division of Owens-Illinois Glass Company to the corporate name, Kimble Glass Company, at P. O. Box 1035, Toledo 1, Ohio.



COUNCIL

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President, Lincoln T. Work

Secretary, Lloyd Van Doren

President-elect, Donald B. Keyes

Treasurer, Frederick A. Hessel

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M. J. Kelley, *New York Chapter*

Alabama Chapter

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C. C. Concannon, *At-Large*

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T. R. Donlan, *New Jersey Chapter*

Donald Price, *At-Large*

Gustav Egloff, *Chicago Chapter*

M. Sittenfield, *Pennsylvania Chapter*

G. J. Esselen, *At-Large*

Foster D. Snell, *Past President*

L. H. Flett, *Past President*

Raymond Stevens,

New England Chapter

Milton Harris, *Washington Chapter*

Manuel Tubis, *Los Angeles Chapter*

M. J. Hiler, *Ohio Chapter*

Florence E. Wall, *At-Large*

L. B. Hitchcock, *At-Large*

Albin Warth, *Baltimore Chapter*

National Council Meetings

Meetings of the AIC National Council are scheduled to be held at The Chemists' Club, 52 East 41st St., New York, N. Y., at 6:00 p.m., on the following dates:

November 12, 1952

January 14, 1953

March 11, 1953

April 8, 1953

May 11, 1953 (Philadelphia, Pa.)

September Meeting

The 284th meeting of the National AIC Council was held September 10, 1952, at 6:00 p.m., at The Chemists' Club, New York, N. Y. President Lincoln T. Work presided.

The following officers and councilors were present: T. R. Donlan, A. W. Fisher, Jr. (alternate); F. A. Hessel, M. J. Kelley, J. H. Nair, M. Sittenfield, F. D. Snell, F. E. Wall and L. T. Work. K. M. Herstein and V. F. Kimball were present.

In the absence of the secretary, Miss Wall was appointed secretary *pro tem*.

The minutes of the previous meeting were approved.

President Work reported that he had attended the joint meeting of the New

COUNCIL . . .

England AIC Chapter and the American Section of the Society of Chemical Industry, June 17th, at which Dr. Godfrey L. Cabot was honored. On June 24th he attended the presidential luncheon, as official representative of the AIC, held by the American Society for Testing Materials. He had represented the AIC at the Centennial Celebration of the American Pharmaceutical Association in Philadelphia, August 20th.

Invitations were presented from Tufts College, to its Centennial Celebration, October 11th, and from Meharry Medical College, to the inauguration of its fifth president. Dr. Fisher was asked to represent the Institute at Tufts College, and the secretary was asked to request Dr. Dwight Bardwell to represent the AIC at Meharry Medical College.

President Work presented a list of Committees and tentative personnel for the coming year.

The local arrangements committee for the Annual Meeting consists of Marcus Sittenfield, C. P. Neidig, and Hillary Robinette.

President Work presented a memorandum from the advertising representative showing an increase of advertising in *THE CHEMIST*.

The report from Benjamin Sweedler, chairman of the Committee on the Keogh-Reed Bill, was presented and referred to the editor of *THE CHEMIST*.

The report from Benjamin Sweedler concerning self-employed chemists under the social security law was accepted and referred to the editor.

The Treasurer's report was presented and accepted.

A Committee on Emeritus Membership was appointed: Dr. Nair, Dr. Hessel, and Mr. Herstein.

Miss Wall presented the secretary's report, showing that we now have 2,522 members.

She announced with deep regret the deaths of the following members: S. D. Averitt, Life Member, in 1952; Calm M. Hoke, Life Member, July 13, 1952; Fred L. Meyer, F.A.I.C., March 24, 1952; Ralph Montanna, F.A.I.C., in January, 1952; John M. Ort, F.A.I.C., in August, 1951; Cliff Ray Otto, F.A.I.C., on March 31, 1952; and Edmund A. Reilly, F.A.I.C., in 1952.

A resolution was passed on the death of Calm M. Hoke, founding member of the AIC. (See page 501).

Mr. Nair, chairman of the Committee on Membership, discussed the plans of the Committee.

The Council discussed the subject of what should be the present objectives of the INSTITUTE, and it was decided that a period would be set aside at the next meeting for the consideration of objectives to be emphasized in the current season.

The Jury of Medal Award, through a notice in the September issue of *THE CHEMIST*, asked the membership for suggestions concerning the persons to be nominated for the gold medal award in 1953.

A meeting of the National Council was scheduled to be held on the evening of May 11th, just prior to the Annual Meeting, in Philadelphia.

Dr. Fisher reported that the New England Chapter plans a meeting at which Mr. Earl Stevenson will speak on the National Science Foundation.

Mr. Herstein announced that the New York Chapter had initiated an active program of cooperation with the New York Section of the American Chemical Society and that a joint meeting is planned on public relations. On October 9th, honorary membership will be presented to Dr. S. D. Kirkpatrick at an informal meeting at Hans Jaeger's Restaurant, New York, N. Y.

Mr. Sittenfield reported that the Pennsylvania Chapter will meet October 9th, with Dr. R. M. Burns of Bell Telephone Laboratories as speaker. The Honor Scroll of the Chapter will be presented on December 4th.

The following new members were elected:

FELLOWS

Cowles, Harry D.

Consultant, 180 N. 19th Street, East Orange, N. J.

Dawson, Lyle R.

Professor of Physical Chemistry; Head, Department of Chemistry, University of Kentucky, Lexington, Ky.

Deer, Leon L.

Materials Engineer and Foreman Electrolater, U. S. Naval Ordnance Plant, 21st & Arlington Ave., Indianapolis, Ind.

Diggin, Myron B.

Technical Director Laboratory, Hanson-Van Winkle-Munning Co., Matawan, N. J.

Frishman, Daniel

Research Associate and Manager, Harris Research Labs., 1246 Taylor St., N.W. Washington, D. C.

Gruber, Gerald I.

Research Chemist, Research Dept., Stauffer Chemical Co., P. O. Box 147, Torrance, Calif.

Hathorne, Berkeley L.

Assistant to Vice President in charge of Development, Glyco Products Co., Inc., 26 Court St., Brooklyn, N. Y.

James, Edward M.

Assistant to Technical Advisor, Management Technical Department, Lever Brothers Co., 390 Park Ave., New York 22, N. Y.

Kaiser, Solomon

Chemist, Research, Hoffmann-La Roche, Nutley, N. J.

Kotrady, John

Technical and Research Department, The Texas Co., 135 E. 42nd St., New York, N. Y.

Osterhof, G. G.

Professor of Chemistry, Head, Department of Chemistry, South Dakota School of Mines & Technology, Rapid City, S. D.

Parks, Albert Fielding

Bureau of Customs, 1512 H Street, Washington 25, D. C.

Tuveson, Bonde R.

Head Chemist, Northwest Magnesite Co., Chewelah, Washington.

MEMBERS**Smith, Carleton F.**

Field Inspector of Paints and Chemicals, Supervising Inspector of Naval Materials, 1206 Santee, Los Angeles, Calif.

Stigman, Shepherd

Radiochemist, Radiology Department, Foster D. Snell, Inc., 29 West 15th St., New York, N. Y.

Whitmore, Harry E.

Sales Manager, Food Antioxidants, Product Department, Universal Oil Products Co., 310 S. Michigan Ave., Chicago 4, Ill.

Winqvist, Albert D., Jr.

Chemist, New Products Division, National Aniline Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.

ASSOCIATES**Blumenstock, Catherine C.**

326 Montgomery St., Jersey City 2, N. J.

Carlson, Elizabeth A.

67-101 Dartmouth St., Forest Hills, L. I., N. Y.

Crane, Jean T.

1371 E. 34th St., Brooklyn 10, N. Y.

Leclerc, Theresa A.

5 Green Street, St. Johnsbury, Vermont.

Schiaffino, Joan V.

228 Dutchess Ave., Staten Island 4, N. Y.

RAISED FROM MEMBER TO FELLOW**Both, William E.**

Analytical Chemist and Researcher, Smith-Emery Co., 920 Santee St., Los Angeles 15, Calif.

Cole, Leland G.

Chief, Chemical & Chemical Engineering Group, University of Michigan Engineering Research Inst., Willow Run Research Center, Ypsilanti, Mich.

RECLASSIFIED FROM FELLOW TO LIFE**Jones, Franklin D.**

Consulting Chemist, 2617 St. David's Lane, Ardmore, Pa.

Expanding: Applied Science Laboratories, Inc., 140 North Barnard St., State College, Pa., headed by Dr. Arthur Rose, F.A.I.C., and A. Witt Hutchison. The Laboratories are engaged in research, testing, small-scale production, and general scientific consultation.

AIC Activities

C. P. Neidig, F.A.I.C.

New York Chapter

Karl M. Herstein, chairman of the New York AIC Chapter, and president of the consulting organization bearing his name, has announced that Savery F. Coneybear, M.A.I.C., vice-president of Evans Research and Development Corporation, has been appointed acting vice chairman of the Chapter, and Richard L. Moore, M.A.I.C., assistant treasurer of Foster D. Snell, Inc., has been appointed acting secretary-treasurer of the New York Chapter.

Mr. Coneybear succeeds Guy A. Kirton, F.A.I.C., who has recently been appointed assistant sales manager of the Chemical Sales Division of Tennessee Eastman's Kingsport plant. Mr. Moore fills the unexpired term of John H. Sanders, also of Tennessee Eastman, who has been appointed technical representative of the Chemical Sales Division in charge of their Cleveland office.

Symposium on Public Relations

The New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS and the New York Section of the American Chemical Society will co-sponsor a "Symposium of Public Relations" at the Hotel Commodore, New York, N. Y., Thursday, Jan.

15, 1953. The following ACS and AIC members comprise the Symposium Committee:

John Kotrady, *Chairman*

The Texas Company
135 East 42nd St.,
New York 17, N. Y.

Dr. Ernest I. Becker, *vice chairman*
Department of Chemistry
Polytechnic Institute of Brooklyn
99 Livingston St.,
Brooklyn 2, N. Y.

Dr. Albert Guiteras
Hudson Laboratories
117 West 13th St.,
New York 11, N. Y.

Dr. Orville Breivik
Fleischmann Laboratories
810 Grand Concourse
New York 51, N. Y.

Paul B. Slawter, Jr.
Sterling Advertising Co., Inc.
535 Fifth Ave.,
New York 17, N. Y.

R. D. Watson
The Texas Company
135 East 42nd St.,
New York 17, N. Y.

Washington Chapter

Chairman, Milton Harris
Vice Chairman, P. E. Reichardt
Secretary, Wesley R. Koster
Treasurer, John F. Williams
Representative to National Council,
Milton Harris

Our newly elected chairman, Dr. Milton Harris, has infused a fresh breath of vitality into the local Chapter which gives promise of a most interesting and inspiring year of activity. Highlights will include visits of prominent chemists to our regular meetings, another Honor Award dinner, and possibly the development of a scheme for improving the status and professional recognition of chemists. A further surprise or two lurks up the sleeve of Milton Harris which he is not yet ready to disclose. These matters will be discussed at the first meeting of the 1952-53 season, which is scheduled to be a luncheon at Bonnat's Restaurant, 1022 Vermont Ave., N. W., Washington, D. C. on October 8th.

Dr. Julian F. Smith, 201 Spring Avenue, Takoma Park, Maryland, has been appointed contributor to THE CHEMIST from the Washington, D. C. area.

Will You Come?

Oct. 9, 1952. Pennsylvania Chapter, Engineers Club, Philadelphia, Pa. Speaker: Dr. R. M. Burns, chemical coordinator, Bell Telephone Labs. "Science & Scientists in Tele-Communication."

Oct. 9, 1952. New York Chapter, Award of Honorary AIC Membership to Dr. Sidney D. Kirkpatrick, F.A.I.C. Speaker: Dr. Donald B. Keyes, "Keyes Kids Kirkpatrick." Presentation of award: President Lincoln T. Work. Informal. Hans Jaeger restaurant, Lexington Ave. & 85th St., New York, N. Y.

Oct. 10, 1952. Chicago Chapter. Meeting to present Honor Scroll to Bernard E. Schaar. Furniture Club, Chicago, Ill. Tickets \$3.75. Reservations: John Krc,

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Jr., Armour Research Foundation, 35 W. 33rd St., Chicago 16, Ill.

Oct. 18, 1952. New Jersey Chapter. Trip to Brookhaven National Laboratory, AEC. Reservations must be made on or before Oct. 4th. Write, David W. Young, Chemical Div., Esso Laboratories, P. O. Box 51, Linden, N. J.

Dec. 4, 1952. Pennsylvania Chapter. Honor Scroll to be presented to Dr. Percy A. Wells, director Eastern Regional Research Laboratory, at the Penn-Sheraton Hotel, Philadelphia, Pa. Dr. John J. Willaman, Eastern Regional Research Laboratory, will speak for the recipient. Dr. Lincoln T. Work, AIC President, will make the presentation. For information write Dr. A. Farkas, Barrett Div., Allied Chemical & Dye Corp., Philadelphia 37, Pa.

Feb. 5, 1953. Pennsylvania Chapter. Dr. Randolph T. Major, vice-president and scientific director, Merck and Company, will speak on "The Research Chemist in the Pharmaceutical and Medicinal Chemical Industry." For reservations call or write, Dr. V. V. Bellino, Barrett Div., Allied Chemical & Dye Corp., Philadelphia 37, Pa. (JE-3-3000).

May 7, 1953. Pennsylvania Chapter. Dr. Sidney D. Kirkpatrick, editorial director, McGraw-Hill Book Co., will speak on "The Rocky Road of the Chemical Professor." At this meeting Student Medals will be awarded. For information and reservations: Dr. V. V. Bellino, Barrett Div., Allied Chemical & Dye Corp., Philadelphia 37, Pa. (JE-3-3000).

May 12-13, 1953. Annual Meeting of The American Institute of Chemists. Philadelphia, Pa. Committee on Arrangements: Marcus Sittenfield, C. P. Neidig, and Hillary Robinette.

Opportunities

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Chemical Engineer: Licensed professional (chemical-mechanical) engineer. 20 years varied experience in development, engineering, and production. Prefer medium-sized manufacturing concern. Box 102, The Chemist.

Sales Executive: 13 years successful experience professional service, executive sales, and advertising. Age 39, Ethical pharmaceuticals. Box 100, The Chemist.

Plant Pathologist: Desires fungicidal field work or sales. B.S. Univ. Vermont. Diversified background in plant pathology and entomology. Box 104, The Chemist.

Manager Research and Development: Ph.D., F.A.I.C. Age 43. Industrial experience in the development and manufacture of synthetic organic chemicals, surface active materials and industrial detergents. Has directed laboratory research, pilot plant, and sales service groups. 20 patents, others pending. Box 106, The Chemist.

Positions Available

Chemical Sales Development Man: Around age 30. Willing to travel. B.S. degree in chemistry or chemical engineering. \$5,000 to \$7,000 plus travel expenses. Position in midwest. Box No. 101, The Chemist.

Chemist: A doctorate with a major in analytic, organic or bio-chemistry with two years' experience in these fields; or a master's degree with analytic, organic or bio-chemistry courses with three years' experience. Position in State Health Department. Merit System position. Salary range \$4,620-\$5,775, Box No. 103, The Chemist.

New York State Civil Service Exams: No. 6213, Biochemist, \$4,053 to \$4,889; No. 6212, senior biochemist, \$4,964 to \$6,088. Applications may be secured from New York State Dept. of Civil Service, State Office Bldg., Albany 1, N. Y. Give No. and title when requesting forms.

For Sale or Lease: Small organic chemical plant, 5,000 square feet first floor; 900 second floor, high ceilings. Complete stonewear tabled equipped laboratory; 50 and 500 gallon Pfaudler glass-lined reactors; 750 gallon glass lined kettle, all jacketed; acre and a half of land. Misc. other equipment. Immediate occupancy. Box 105, The Chemist.

For Your Library

Adsorption and Chromatography

By H. G. Cassidy. Vol. V of Series, Technique of Organic Chemistry. Interscience Publishers, Inc., 360 pp., 6 1/2" x 9 1/2", \$7.00.

This review of the various methods by which adsorption may be used to separate mixtures will be of genuine use to organic chemists by making more accessible to them data about this particular laboratory tool, which has been less popular than other separation methods more widely understood and publicized.

Dr. Cassidy's experience as a professor at Sterling Scientific School of Yale University has given him facility in the discussion method and a clarity of expression which will prove helpful to the chemist turning to this volume for information. It is well documented and indexed.

DR. FREDERICK A. HESSEL, F.A.I.C.

Advances in Enzymology

Vol. 13. F. F. Nord, Editor. Interscience Publishers, Inc. 413 pp. 9 1/2" x 6 1/2", \$8.50.

This volume contains nine interesting reviews covering localization of enzymes in cytoplasm; tracers in permeability studies; adaptive enzymes; gene structure and gene action; adenosine triphosphate and muscle contraction; hyluronidases; glutamine, asparagine and glutathione metabolism; inhibition of chymotrypsin; nitrogen fixation. Nearly all of the subjects include discussion of techniques and theories. This volume should be of considerable interest to the enzymologist.

—DR. HENRY TAUBER, F.A.I.C.

Phase Microscopy

By *Bennet, Osterberg, Jupnik, and Richards*. John Wiley & Sons, Inc. 320 pp. 6" x 9". \$7.50.

An interesting and well-illustrated treatment of the use of the phase microscope showing the greater resolution of details. Many plates of illustrations are given, and the mathematics of phase microscopy is developed. Phase microscopy gives just that bit more of detail that the microscopist desires.

—DR. JOHN A. STEFFENS, F.A.I.C.

Principles of Weed Control

By *Ahlgren, Klingman and Wolf*. John Wiley & Sons, Inc. 368 pp. 5 3/4" x 8 1/2". \$5.50.

A thorough treatise on the control of weeds by chemical and mechanical means. The chemistry and physiological effects of herbicides are treated in detail for specific plants and horticultural applications, such as lawns, ditches and ponds, field crops, and rights of way. Poisonous weeds are considered in a separate chapter. This is an excellent reference book.

—DR. JOHN A. STEFFENS, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Verlag Gustav Fischer, Jena: *Mikroskopische Untersuchung pflanzlicher Nahrungs- und Genussmittel*, by Gustav Gassner, 2nd ed., 372 pp. (812 ill.), DM 26. Here are superb (200x magnified) pictures of plant materials used in food and feedstuffs, as seen in the microscope. I would like to suggest the publication of a revised American edition of this work, including in it most of the cuts and abstracts of the text.

Georg Allen & Unwin, London WC 1: *Inorganic Preparations*, by Alexander King; rev. ed., 168 pp. (22 ill.), \$1.75. One of the few books dedicated to the correlation of theory and practice in chemical teaching. This systematic course of experiments consists of 187 well-selected inorganic preparations and many more procedures with all the details necessary to make it possible for the student to follow them easily and safely.



Quelle & Meyer, Heidelberg: *Physiologische Chemie*, by Kurt Felix, 1951, 468 pp., DM 24. A modern textbook which (without giving credit to literature sources) considers the findings of physiological-chemical research up to 1950. Its merit lies in the clear and concise presentation of the subject matter.

Omitted: The name of the publisher of *The National Formulary* 1952, reviewed on page 407 of the August 1952 issue of *THE CHEMIST*. It is The Pharmaceutical Press, London WC 1.

Information

"Zero Hardness by Amberlite Deionization." Folder. Resinous Products Div., Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

"Vinsol Resin in Buna N Adhesives." Technical booklet. Hercules Powder Co., Wilmington, Del.

"Chemistry in Action." Publication of Truesdail Laboratories, Inc., 4101 North Figueroa St., Los Angeles 65, Calif.

"Research for Industry." News Bulletin. Stanford Research Institute, Stanford Calif.

"MCP (2-methyl-4-chlorophenoxyacetic acid) or (4-chloro-o-Toloxycetic Acid)." Technical Data Sheet. Development Dept. Organic Chemicals Div., Monsanto Chemical Co., St. Louis 4, Mo.

"Chemical Market Report." Publication. Subscription \$15 per month. Foster D. Snell, Inc., 29 West 15th St., New York 11, N. Y.

"Production Control Systems and Procedures." 56-pp. Publication X-1268, Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.

"X-ray Diffraction & Geiger Counter X-ray Spectrometric Equipment." 54 pp. Brochure. North American Philips Co., Inc., 750 S. Fulton Ave., Mount Vernon, N. Y.

"Sample Package of Combax Combustion Boats." Available from Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"New Anti-Fog Liquid." Information. Merix Chemical Co., 1021 E. 55th St., Chicago 15, Ill.

"Electric Utility Laboratory Ovens." Information. Palo Laboratory Supply Corp., 81 Reade St., New York 7, N. Y.

"Safety Data Sheet SD-47 on Sodium-Sodium Metal, Metallic Sodium." 25 cents. Manufacturing Chemists' Assoc., Inc., 15th & H Sts., N. W., Washington 5, D. C.

"Model NLU-2 Computer. New Unit Provides Simulation of Backlash, Dead-Zone and Limit-Stops for Handy Computer." Information. Computer Corp. of America, 149 Church St., New York 7, N. Y.

"New Cold Steep Bleaching Process." For paper pulp. Bulletin. Buffalo Electro-Chemical Company, Inc., Station B, Buffalo 7, N. Y.

"High-Speed Industrial Refractometer." Information. Scientific Instrument Div., Bausch & Lomb Optical Co., Rochester, N. Y.

"News Chats." Quarterly publication. Gordon C. Godejahn, Editor, Central Scientific Co., 1700 Irving Park Rd., Chicago 13, Ill.

"Hydrion pH Papers. O-14 Range." Leaflet. Palo Laboratory Supply Corp., 81 Reade St., New York 7, N. Y.

"Manual of Laboratory Safety." 40 pp. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

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Volume 1, No. 1 of *Scientia International* was published by Science Service, 1719 N. St., N.W., Washington 6, D. C. in July. Written in the new international language, Interlingua, it carries science news for the non-English speaking areas of the world. Subscription \$2.00.

New Fellowship: Sponsored by Parke, Davis & Company of Detroit, Mich., at Mellon Institute, Pittsburgh, Pa., to carry on long-range investigations in synthetic organic chemistry. It is headed by Dr. Alexander M. Moore, administrative fellow, since 1946 a Parke Davis specialist in the synthesis of potential drugs.

Scholarships: Established by Standard Oil Company (Indiana) in fourteen liberal arts colleges in the midwestern states in which it operates, to further the training of senior students in chemistry. Beginning six years ago, the company and its subsidiaries have also established thirty-six fellowships in graduate schools for students working for M.S. or D.Sc. degrees.

Graduate Fellowship: In electrochemistry, established by General Motors at the University of Michigan, Ann Arbor, Mich. A cash award of \$1,800 is to be given to the recipient and \$1,000 to the University to cover tuition. It will involve fundamental research. The recipient will be nominated by electrochemistry teachers on the University's faculty.

Glycerine Research Awards: Established by the Glycerine Producers' Association for outstanding research on the application of glycerine or glycerine derivatives. An honor plaque carries a cash stipend of \$1,000 and two honor certificates carry stipends of \$300 and \$200 respectively. Official entry blanks for making nominations may be obtained from the association at 295 Madison Ave., New York 17, N. Y., and should be submitted by November 15th.

Job Outlook: Best it has ever been for college graduates in chemistry and chemical engineering over the next five to ten years, according to Charles S. Munson, chairman of the board of the Manufacturing Chemists' Association, Inc.

"The chemical industry now employs about 100,000 chemists, 30,000 chemical engineers and 17,000 physicists, and this existing manpower pool is not being replenished fast enough. Some 10,600 B.S. degrees in chemistry were awarded in 1950, but the number has been falling off. Prelim-

inary estimates indicate that some 6,800 students will graduate this year, and only about 5,600 in 1953. . . . The industry could have used 5,000 (chemical engineers) last year, but only 3,800 graduated . . . military service claimed 1,000 of the 3,800."

Mr. Munson believes that "qualified young people can find in chemistry limitless opportunity for personal achievement and public service. . . . The field has its financial rewards too. June graduates this year with B.S. and M.S. degrees are receiving starting salaries of \$350 to \$400 a month, while holders of Ph.D. degrees are beginning as high as \$500."

New Fellowship: At Mellon Institute, Pittsburgh, Pa., to develop uses for resins derived from ethylene and acetylene. The fellowship, sponsored by the Bakelite Company, division of Union Carbide and Carbon Corporation, New York, N. Y., will be headed by Dr. Richard W. Quarles, senior fellow.

New Fellowship: For conducting systematic studies of standardization and its applications in science engineering, production, and marketing, announced by Dr. Edward R. Weidlein, Hon. AIC, president of Mellon Institute, Pittsburgh, Pa. It is sustained by a grant from the Sarah Mellon Scaife Foundation. Its projects will be organized by Dr. Dickson Reck, advisory fellow.

Graduate Assistant: Leland E. Cratty, A.A.I.C., who will study physical chemistry this fall at Brown University. He was presented with a Student Medal by the AIC Chicago Chapter this spring.

Acquired: Eston Chemicals, Inc., Los Angeles agricultural chemicals manufacturer, by American Potash & Chemical Corporation. Eston will be operated as the Eston Chemicals Division of the corporation.

Fellowship: Established by Monsanto Chemical Company for graduate research in textile chemistry and physics at North Carolina State College, Raleigh, N. C. The fellow will be chosen by the Textile and Graduate Schools of the College.

Appointed: Jackson D. Leonard, chemical engineer from Metuchen, N. J., to R. S. Aries & Associates, consulting engineers and economists, 400 Madison Ave., New York, N. Y., as a senior associate, it was announced recently by Dr. Robert S. Aires, F.A.I.C.

Announced: By Dr. N. N. T. Samaras, F.A.I.C., director, Central Research Laboratory, Monsanto Chemical Company, St. Louis 4, Missouri, the appointment of Dr. John W. Anderson as group leader in charge of the chemical engineering research section.

Appointed: By Roger Williams, Inc., engineering and economic consultants, New York 16, N. Y., Herman W. Zabel as executive vice-president. He was formerly director of research of Chemical Enterprises and associate editor of *Chemical Week*.

Re-elected: To the Board of Directors of Monsanto Chemical Company, Dr. Carroll A. Hochwalt, F.A.I.C., and Francis J. Curtis, F.A.I.C.

New Branch Office: Opened by General Controls Co., 410 Asylum St., Hartford, Conn. Joe Crandley is district manager.

Controlling Interest: Acquired by Labline, Inc., 217 N. Desplaines St., Chicago, Ill., in Chicago Surgical and Electrical Company, to be operated as Labline's subsidiary.

Appointed: By Shell Chemical Corporation, 50 West 50th St., New York 20, N. Y., J. M. Selden as manager of the Eastern Division of Shell.

Centennial Celebration: Planned to commemorate the inauguration of engineering courses at the University of Michigan, October 23rd and 24th, 1953. Prof. Stephen S. Atwood is chairman of arrangements.

Open Door Meeting: To be held by Association of Consulting Chemists and Chemical Engineers, Inc., Oct. 28th, at the Baroque Room, Hotel Belmont Plaza, New York, N. Y. Symposium on "Everyday Chemistry—Cosmetics and Household Chemicals." Speakers, Robert E. Horsey, F.A.I.C., Sales Manager, Sindar Corp., New York; Miss M. Geneva Gray, Arthur D. Little, Inc., Cambridge, Mass., and Maurice S. Sage, Sage Laboratories, Inc., New York, N. Y. Exhibits and samples. For information write the Association at 50 E. 41st St., New York 17, N. Y.

Current Officers of the Association of Research Directors, are: Past president, Dr. W. Glen Bywater, F.A.I.C.; president, Dr. Emil Ott, F.A.I.C.; vice-president, Allan R. A. Beeber, F.A.I.C.; Secretary-treasurer, David X. Klein; Councillor for one year, C. R. Scholz; Councillor for two years, William H. Lycan, and Councillor for three years, Dr. Delbert F. Jurgensen, F.A.I.C.

Reclassified: The Industrial Aviation Division of the R. M. Hollingshead Corp., Camden, N. J., which is now known as the Industrial Division.

Appointed: George Norman as sales manager of Corning Glass Works', New Products Division, Corning, N. Y.

Moved: The executive offices of Heyden Chemical Corporation from 393 Seventh Ave., New York, N. Y., to 342 Madison Ave., New York, N. Y.

Awarded: A Merck Fellowship to Richard Leslie Hinman, A.A.I.C., 607 W. University Ave., Champaign, Ill., for work on the structures of complex nucleotides, under Dr. Alexander R. Todd at Cambridge University, England.

Expansion: Of the Supplee Laboratories Division of Foster D. Snell, Inc., at Bainbridge, N. Y., scheduled for completion this Fall, to meet increased demand for vitamin assay services and laboratory animals.

New Laboratory: Opened by The Perkin-Elmer Corporation, Norwalk, Conn., for the evaluation of infrared methods of industrial analysis.

Speaker: Dr. Gustav Egloff, Hon. AIC, who addressed the Rotary Club of Davenport, Iowa, on "The Modern Oil Industry," August 4th. He was interviewed over Station WOC-TV on August 3rd, and on Radio Station KSTT on August 4th. He spoke under the auspices of the Oil Industry Information Committee of the American Petroleum Institute. Dr. Egloff has also been made chairman of the Third Young Engineers Forum Committee of the Western Society of Engineers, Chicago, Ill.

Condensates

Ed. F. Degering, F.A.I.C.

Buckman Labs., Inc.

The keel of the *USS Nautilus*, the first atomic-powered submarine, was laid at Groton, Conn., during June.

The plastics industry during 1951 crowded the billion dollar mark by sales of over 711 million dollars, a 25 per cent increase over 1950.

Average weekly earnings in April, according to the Department of Labor, by trades were: Coal and petroleum, \$81.65; transportation equipment, \$80.02; machinery, except electrical, \$78.40; printing and publishing, \$78.08; ordnance, \$77.00; primary metals, \$74.01; rubber products, \$71.04; fabricated metal products, \$70.73; instruments, \$70.38; chemicals, \$69.26.

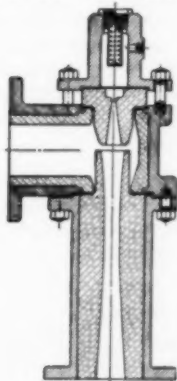
Nuclear activities is big business. Two new installations under the Atomic Energy Act will cost \$1,800,000,000, as compared to a total capital investment of General Motors of about \$1,900,000,000.

In the parade of soil conditioners is an agricultural frit which supplies valuable trace elements to plants through contacts with the roots.

The enormous amount of money spent on research and expansion—\$1266 million in 1951; a probable \$1464 million in 1952—illustrates clearly the self-perpetuating nature of the chemical industry.

New all-nylon cord tires, with sidewalls of natural and tread of cold synthetic rubber, according to R. P. Dinsmore, F.A.I.C., vice president in charge of research and development, Goodyear Tire and Rubber Co., have 26 per cent more nonskid thickness and offer thousands of additional skid-resistant miles to the life of the tires.

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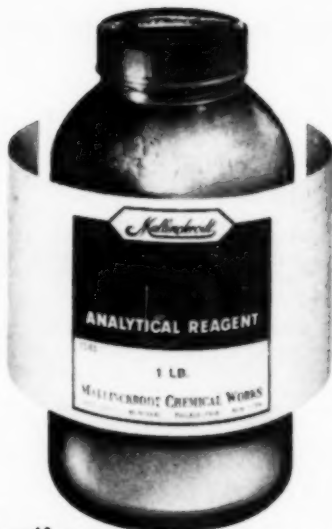
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211-215 North 8th St., Brooklyn 11, N. Y.

FOR ACTION

Social Security

(Chemists are urgently requested to read and take action on this report of a committee appointed to consider the Social Security Law)

THE Social Security Law as amended in 1950 specifically excludes from the benefits and obligations of the law self-employed individuals in the following professions:

physicians, lawyers, dentists, osteopaths, veterinarians, chiropractors, naturopaths, optometrists, Christian Science practitioners, architects, certified public accountants, accountants registered or licensed as accountants under State or municipal law, full-time practicing public accountants, funeral directors, or professional engineers.

The Social Security Law as amended requires payment of taxes on self-employment income up to \$3,600 per year at the rate of $2\frac{1}{4}$ per cent for the taxable year up to and including 1953, 3 per cent for the taxable years from 1954 through 1959, $3\frac{3}{4}$ per cent for the taxable years from 1960 through 1964, $4\frac{1}{2}$ per cent for the taxable years from 1965 through 1969, and $4\frac{7}{8}$ per cent for each taxable year beginning with 1970. The benefits may be as high as \$150 a month computed on maximum earnings of \$3,600 per year.

Recently a Deputy Commissioner of Internal Revenue has interpreted the law as including self-employed chemists (not chemical engineers).

Many now excluded requested such exclusion from Social Security coverage because of (a) disbelief in bur-

dening future generations with the cost of the Social Security program, (b) fear of Government regulation, and (c) inadequate benefits initially available.

The inclusion, by interpretation, of self-employed chemists and the specific exclusion of the other professions above enumerated places the chemists in a class separate and apart from these other professions. This might be considered prejudicial to the professional standing of chemists.

The American Chemical Society has initiated a poll of its members to determine how they stand on the inclusion of self-employed chemists in the Social Security law. The results of this poll have not yet come to our attention.

Your Council desires to determine the attitude of the members on this question so that it can be guided thereby in deciding upon the position THE AMERICAN INSTITUTE OF CHEMISTS should take on this important matter. Members are earnestly requested to write to:

The American Institute of
Chemists
60 East 42nd Street
New York 17, N. Y.

to indicate whether or not they favor inclusion of self-employed chemists under Social Security coverage.

—BENJAMIN SWEEDLER, F.A.I.C.

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pH at 20°C of 0.1M Solution... 11.3
Vapor Pressure
at 20°C..... approx. 1mm
Flash Point (Tag, open cup) . 159°F
Solubility in Water g/100
ml at 20°C... completely miscible



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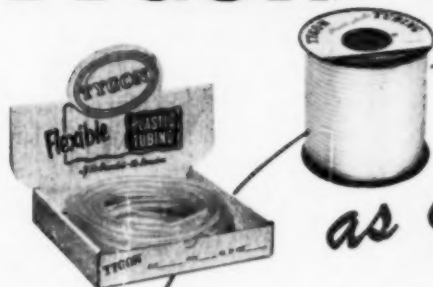
Ammonium Persulfate	Perchloric Acid
Hydrochloric Acid	Sodium Chlorate
Hydrofluoric Acid	Sodium Peroxide
Molybdic Acid	Tin, Granular, 20 or 30 mesh



Baker Chemicals

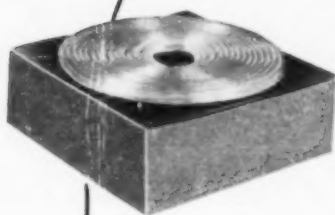
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PLASTICS & SYNTHETICS DIVISION

Now, TYGON TUBING is packaged in three ways. Now, you can specify and get TYGON TUBING in the type of package best suited to your needs.

On the easy dispensing steel reels, TYGON TUBING is available in continuous lengths up to 2000 feet and in outside diameters up to $\frac{3}{8}$ " with the actual length depending on the O.D. of the tubing.

In the handy, hinged-lid boxes, TYGON TUBING is available in outside diameters up to $\frac{3}{8}$ ", one 50 foot length per box.

In the large cartons, TYGON TUBING is available in all sizes up to 2" I.D. and in 50 foot, 100 foot, or continuous lengths.

Getting TYGON TUBING in the right package is important. But, more important is the fact that you are getting genuine TYGON TUBING. TYGON is the finest laboratory tubing made. It's glass-clear, non-toxic, fully flexible, smooth-surfaced, and non-oxidizing. It resists both acids and alkalis plus oils, greases, water, and most solvents except certain aromatic hydrocarbons.

To insure your getting genuine TYGON TUBING, every foot of this fine tubing is now permanently branded with the trade name and formulation number.